Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Electronic Supplementary Information

Folic Acid-Conjugated Hollow Mesoporous Silica/CuS Nanocomposites as a Difunctional Nanoplatform for Targeted Chemo-Photothermal Therapy of Cancer Cells

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Supplementary Figures and Tables

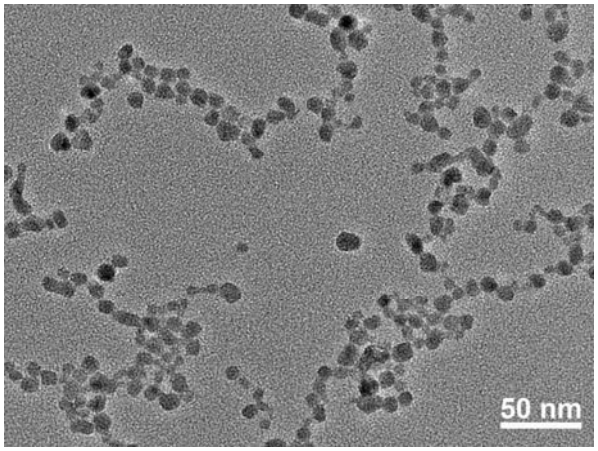

Fig. S1 TEM images of CuS NPs

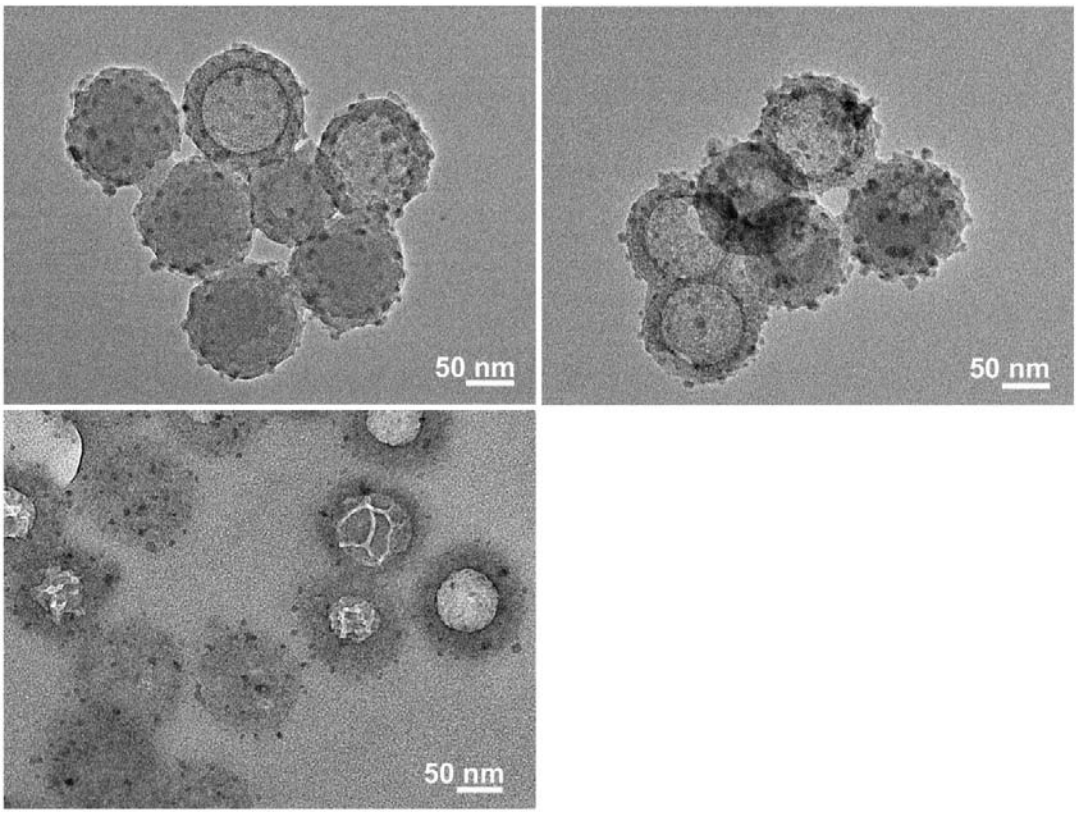

Fig. S2 TEM images of $HmSiO_2$-FA-CuS-PEG/DOX nanocomposites after dispersing in PBS (7.4) (a), PBS (pH 6.6)(b) and culture medium with 10% calf serum (c) for four days, respectively.

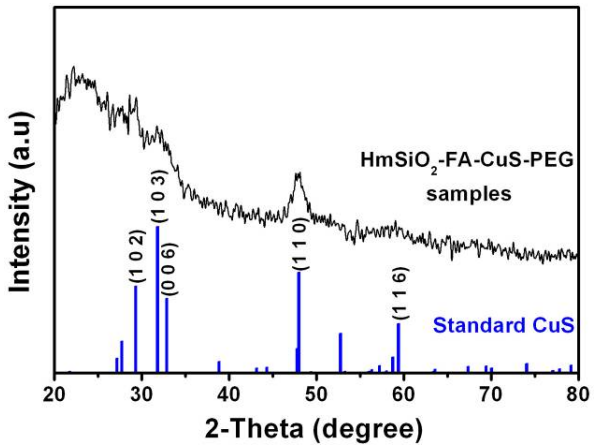

Fig. S3 XRD patterns of as-synthesized $HmSiO_2$-FA-CuS-PEG nanocomposites (upper) and the standard CuS powder from JCPDS file (lower).

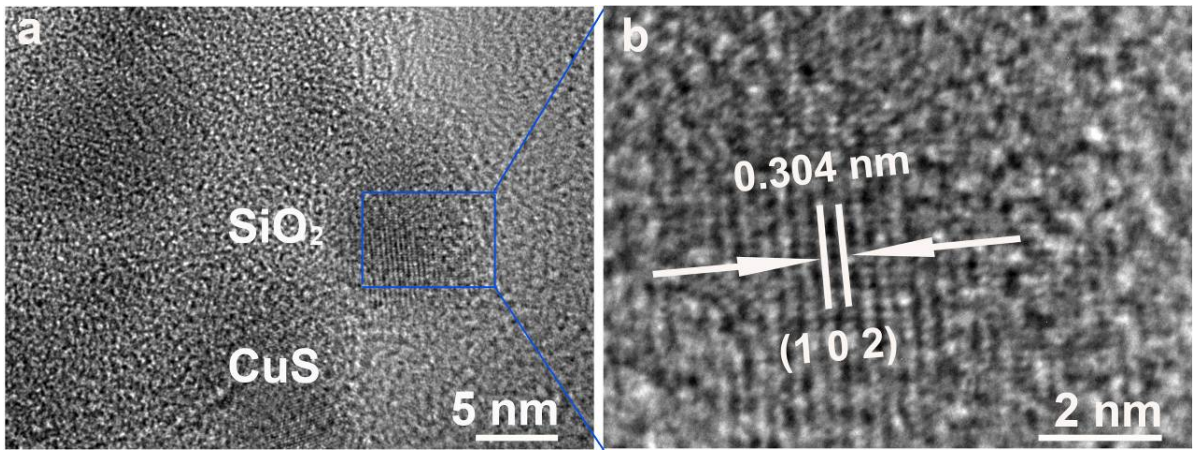

Fig. S4 (a) HRTEM images and (b) magnified HRTEM images of as-prepared $HmSiO_2$-FA-CuS-PEG.

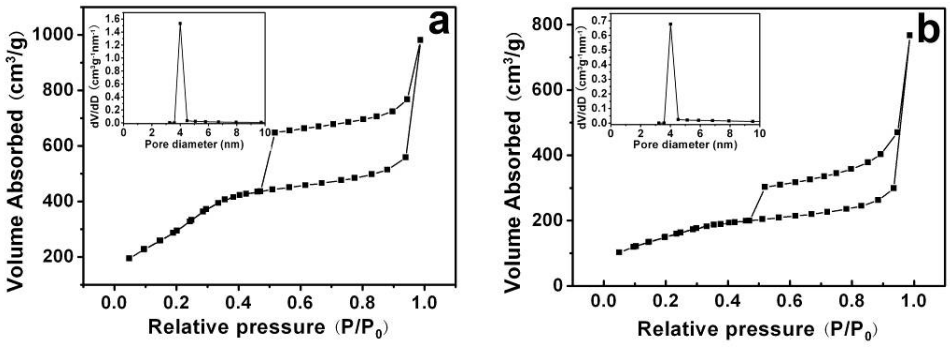

Fig. S5 (a) N_2 adsorption-desorption isotherms (inset: the pore diameter distribution) of SiO_2 nanospheres. (b) N_2 adsorption-desorption isotherms (inset: the pore diameter distribution) of these $HmSiO_2$-FA-CuS-PEG nanocomposites.

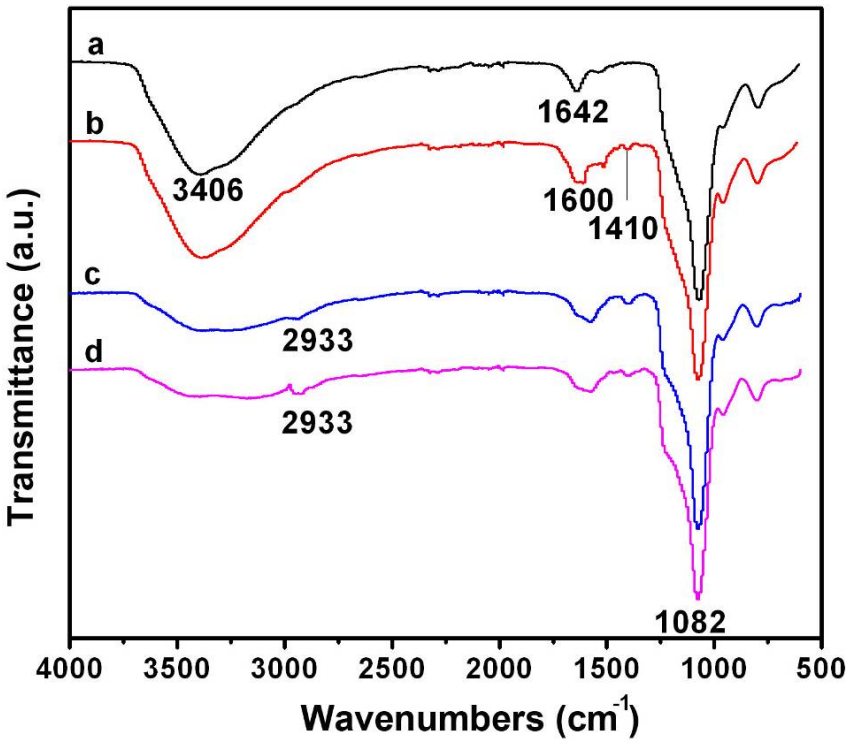

Fig. S6 FT-IR spectra of (a) $HmSiO_2$-NH_2, (b) $HmSiO_2$-FA, (c) $HmSiO_2$-FA-CuS and (d) $HmSiO_2$-FA-CuS-PEG nanocomposites.

Tab. S1 DOX loading content and entrapment efficiency of the $HmSiO_2$-FA-CuS-PEG nanocomposites.

$HmSiO_2$-FA-CuS-PEG (mg)	**DOX (mL)**	**Loading Content(%)**	**Entrapment Efficiency (%)**
5	1	9.4	96.3
5	2	17.3	97.2
5	3	23.8	96.6
5	4	29.3	96.4
5	5	33.7	94.4
5	6	37.7	93.7
5	8	44.4	92.7
5	10	49.3	90.4

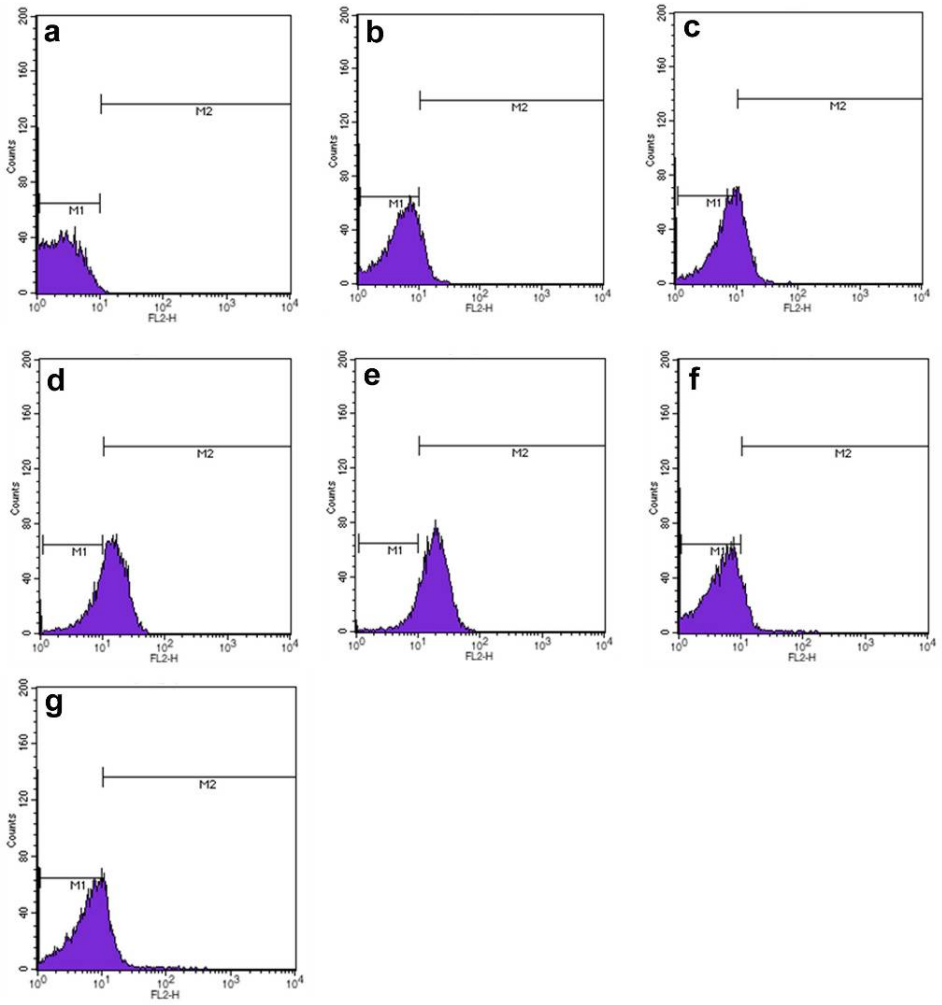

Fig. S7 Flow cytometry analysis of the control cells (a), HeLa cells incubated with 5μg/mL and 8μg/mL of $HmSiO_2$-CuS-PEG/DOX (b,c), $HmSiO_2$-FA-CuS-PEG/DOX (d,e), $HmSiO_2$-FA-CuS-PEG/DOX (cells pre-incubated with FA) (f, g) for 3 h, respectively.

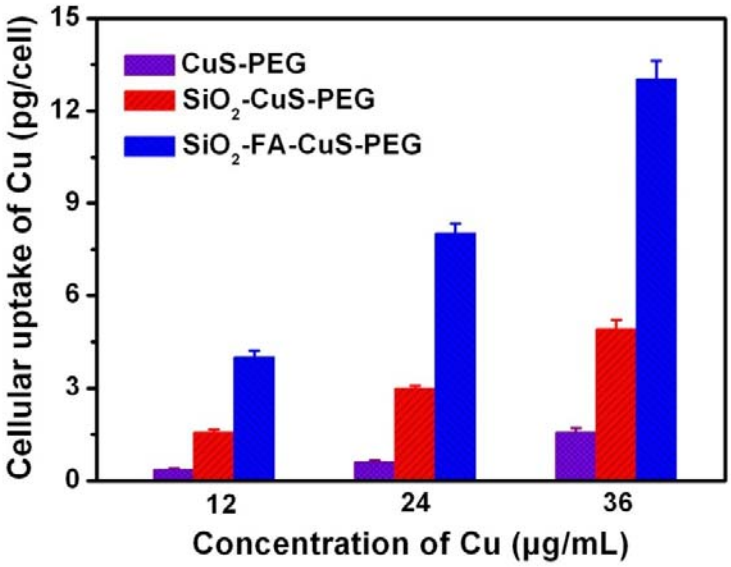

Fig. S8 The cellular uptake of CuS-PEG NPs, SiO_2-CuS-PEG nanocomposite and SiO_2-FA-CuS-PEG nanocomposite (concentrations of Cu are 12 μg/mL, 24 μg/mL and 36 μg/mL, respectively).